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Trees Are the Answer . . .

to America's Growing Environmental Concerns

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The Tree Planting Program Has Taken Root

"All across the country, trees are growing on private lands, as more and more people recognize the benefits of trees."



Fielden "Sonny" Poirier has given up trying to grow oats and other grains on 90 sandy, eroding acres on his farm in Bonner County, ID. "I spent quite a bit of money to keep the land in production over the years, and it's been an uphill battle," he says.

But Poirier hasn't given up on his land. In 1987 and 1988, he enrolled the acreage in the Federal Conservation Reserve Program (CRP). With financial assistance from the Government, Poirier planted a new "crop" — 47,000 ponderosa pines.

The trees won't yield a financial return for several decades, but Poirier says that isn't his main concern. "Some of that land probably never should have been cleared in the first place," he says. "In the long run, I think it will be more profitable put back in trees — and better for the soil."

All across the country, seedlings are growing on what were once eroding farm fields, thanks to the CRP. This Federal conservation program, created by the Food Security Act of 1985, is projected to be the largest publicly sponsored tree





planting program to date. It is designed to encourage farmers like Sonny Poirier to stop growing annual crops on lands that are most vulnerable to wind or water erosion.

Instead of farming fragile acres, farmers who participate in the CRP are paid to take the land out of production for 10 years. To protect the soil from the effects of wind and water, it is planted in vegetation such as trees or perennial grasses. These "cover" plantings may not be harvested during the 10-year contract period, although trees can be sold commercially after the agreement has expired.

In the first 3 years of the program, about 2 million acres had already been set aside for trees.

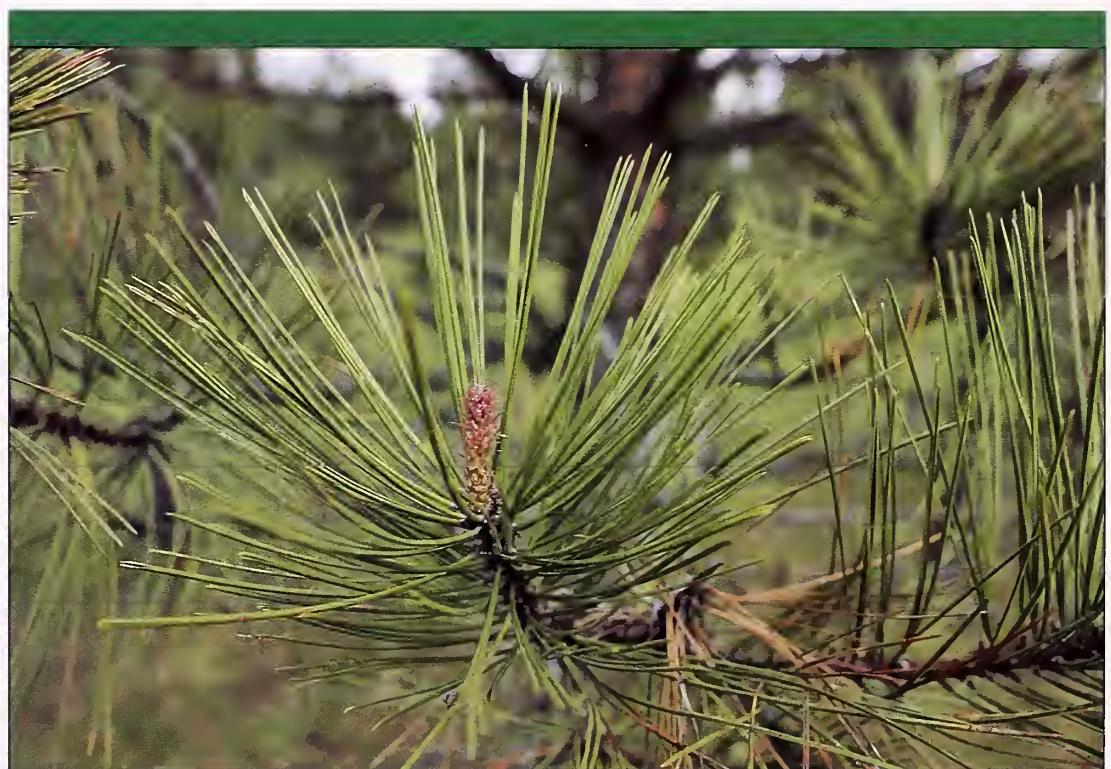
Other Federal programs are also helping trees take root. Under the U.S. Department of Agriculture's Forestry

Incentives Program and Agricultural Conservation Program, the Government shares the cost of tree planting with private landowners. Under these programs, more than 8 million acres of trees and shrubs have been planted.

Forestry, agricultural and environmental officials are eyeing a variety of additional proposals to broaden the Nation's tree planting efforts. In addition to expanding planting on cropland and pastureland, they are working to put more trees around houses, in towns, and along highways and to encourage woodlots on industrial lands.

Why trees?

Trees offer short-term and long-term benefits that few other cover plantings can match. Because of their extensive





root systems, trees are as effective, and in many cases more effective, than other types of vegetation for keeping soil where it belongs — on the ground and out of waterways. Trees also provide shelter for many kinds of birds and animals.

In addition, trees offer another benefit, one that is gaining more attention as people grow increasingly concerned about the greenhouse effect and global climate change. Changes in global climate are caused, in part, by the buildup of carbon dioxide in the atmosphere. Because trees use carbon dioxide in the photosynthetic process and store carbon in their wood, large-scale reforestation may be one way to counteract the greenhouse effect.

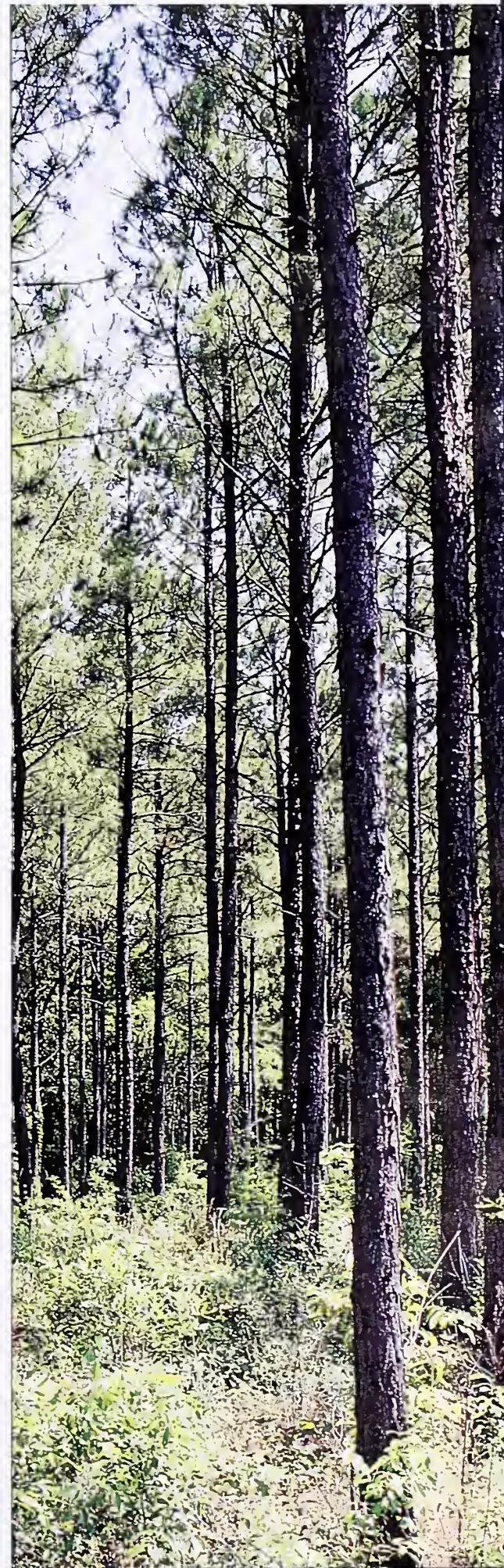
Trees provide these benefits for decades, because once farmland is planted in trees, it tends to stay in trees. The records of previous farmland reserve programs bear that out. For example, approximately 90 percent of the acres planted in trees under the Soil Bank program of the 1950's and 1960's have remained forested, while many of the Soil Bank acres planted in grass have been returned to crop production.

Taxpayers benefit from trees, too. Government expenditures to promote tree planting will "buy" decades worth of conservation on planted acreage. In addition, those programs that foster tree planting on cropland are expected to shave billions of dollars from the U.S. Department of Agriculture's agricultural support program expenditures, because the Government will not need to make price and income support payments for surplus production of crops like wheat, corn, sorghum, barley, and oats.

When land is planted to trees, the Nation is also insuring badly needed future timber supplies. The Forest Service estimates that the total demand for wood products will increase by almost 10 percent by the year 2000 and as much as 40 percent by the year 2030. Tree plantings on private lands will help satisfy these future needs for wood.

But perhaps the greatest value of a tree planting program is the way it takes the future into account, says John Bethea, former State Forester of Florida. "We're a now generation — we tend to live very much in the present," he says. "But when we're dealing with environmental matters as serious as the loss of soil productivity, the degradation of our waters, and possible changes in our climate, we need to find ways to think not only about the here and now, but about what's down the road."

"When we plant trees," he says, "we are doing both."





Planting Trees—An Investment in the Environment

"Trees offer short-term and long-term benefits that few other cover plantings can match."

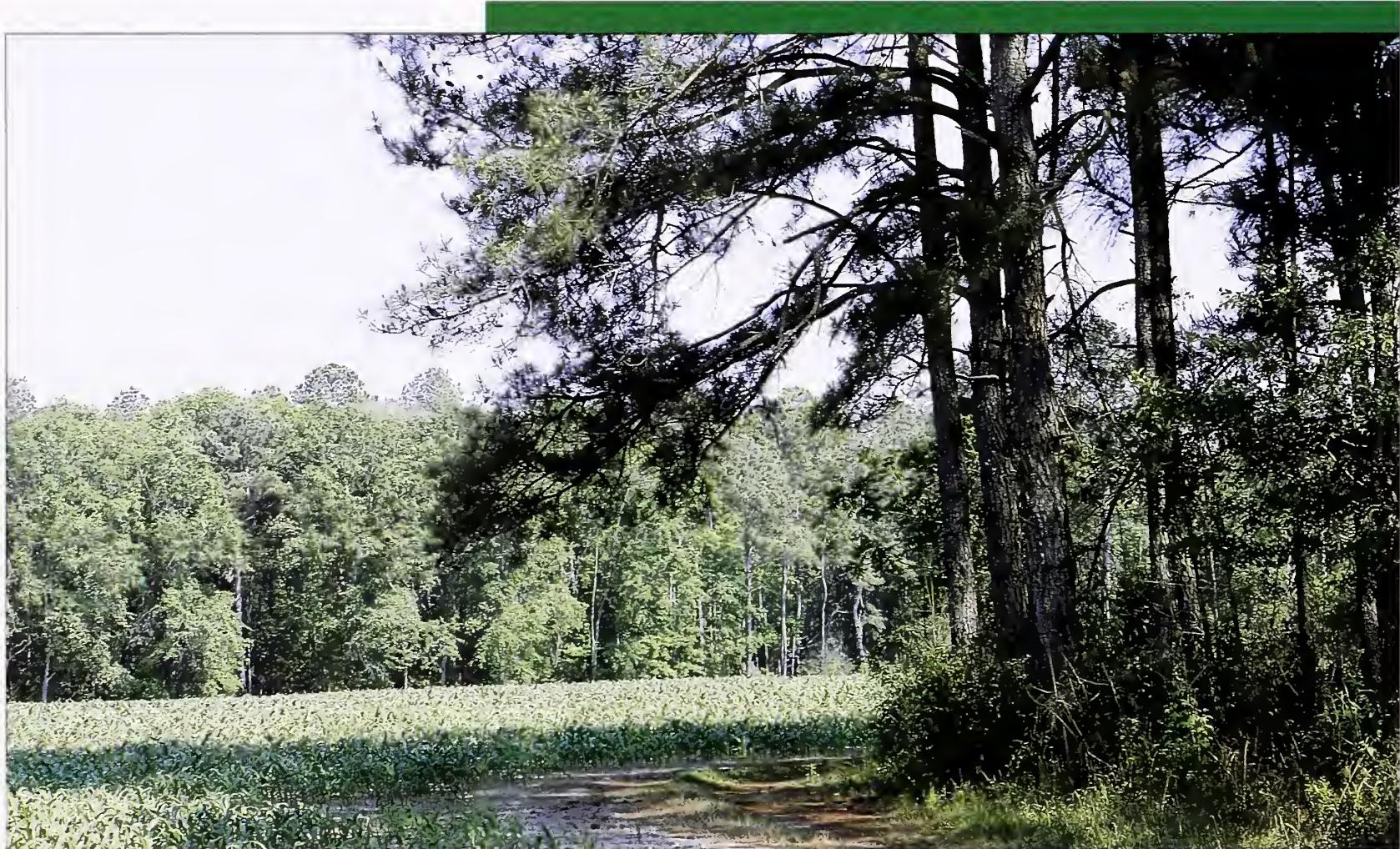
When one forester was asked "Why plant trees?" he gave a simple answer: "We feel better being around them."

We feel better around trees, whose graceful forms relieve the monotony of straight roads and row-cropped fields. We feel better around trees, whose shade cools on a hot summer day. But we also feel better around trees because they literally make our environment healthier. At the same time that they hold the soil, trees reduce water pollution, clean the air, and help wildlife. The result is an environment that is a

better place to be — for us and for all the creatures we share it with.

Trees Help Fields "Hold Their Ground"

Every year, more than 3 billion tons of topsoil erode from our Nation's croplands. But all fields don't erode at equal rates. Hilly fields, fields with light, sandy soils, and fields that are more often exposed to wind and water are among those that tend to lose the greatest amounts of soil when they are plowed up for crop production. These are the fields that will benefit from tree planting.





Data from the Conservation Reserve Program demonstrate how well trees can help fields retain their soil. When it was in crop production, the typical CRP field lost more than 22 tons of soil per acre per year, a rate that is about three times the national average for cultivated cropland. But after the land was entered in the program and planted in trees or other protective covers, erosion rates dropped dramatically — to only 1.6 tons per acre, according to a Federal study of the CRP's impact, entitled "Conservation Reserve Program: Progress Report and Preliminary Evaluation of the First Two Years."

Trees Reduce Water and Wind Erosion

Trees help reduce the effects of **water** erosion with the aid of their roots and crowns. The extensive root system reaches out around the tree, holding soil in place. At the same time, leafy crowns — and the fallen leaves or needles that accumulate at the base of trees — help break the force of rain and slow the rate at which water enters the soil. As a result, rainwater is more likely to be absorbed into the ground than to wash off the surface of the land, carrying soil with it.

Trees also reduce **wind** erosion. Rows of trees planted at the edges of fields as

windbreaks help reduce soil losses by blunting the force of winds and blizzards. According to one estimate, a field windbreak helps reduce wind erosion in an area about 10 times the height of the windbreak times its length.

Trees Keep Rivers and Streams Clean

Soil erosion is one of the major causes of water quality problems in many of the Nation's streams, lakes, and estuaries. Sediments running off fields cloud waters and cover over aquatic habitats; the fertilizers they carry with them cause excessive algae growth, while pesticides can threaten the health of fish and wildlife.

By holding soils in place, trees significantly reduce the amount of soil that washes into waterways. Trees and other vegetation planted as filter strips alongside rivers and streams are especially effective in trapping cropland soils and keeping them out of waterways.

In addition, because farmers use much lower amounts of fertilizer and pesticides on forested acres than they do on cropland, tree planting produces a significant decline in the amounts of agricultural chemicals that make their way into streams. According to the CRP evaluation, that program alone could reduce by 3 percent the amount of fertilizer

used annually on the Nation's farmlands. Further reductions are possible as more acreage is planted in trees. Other studies suggest that similar reductions in pesticide use can be expected as well.

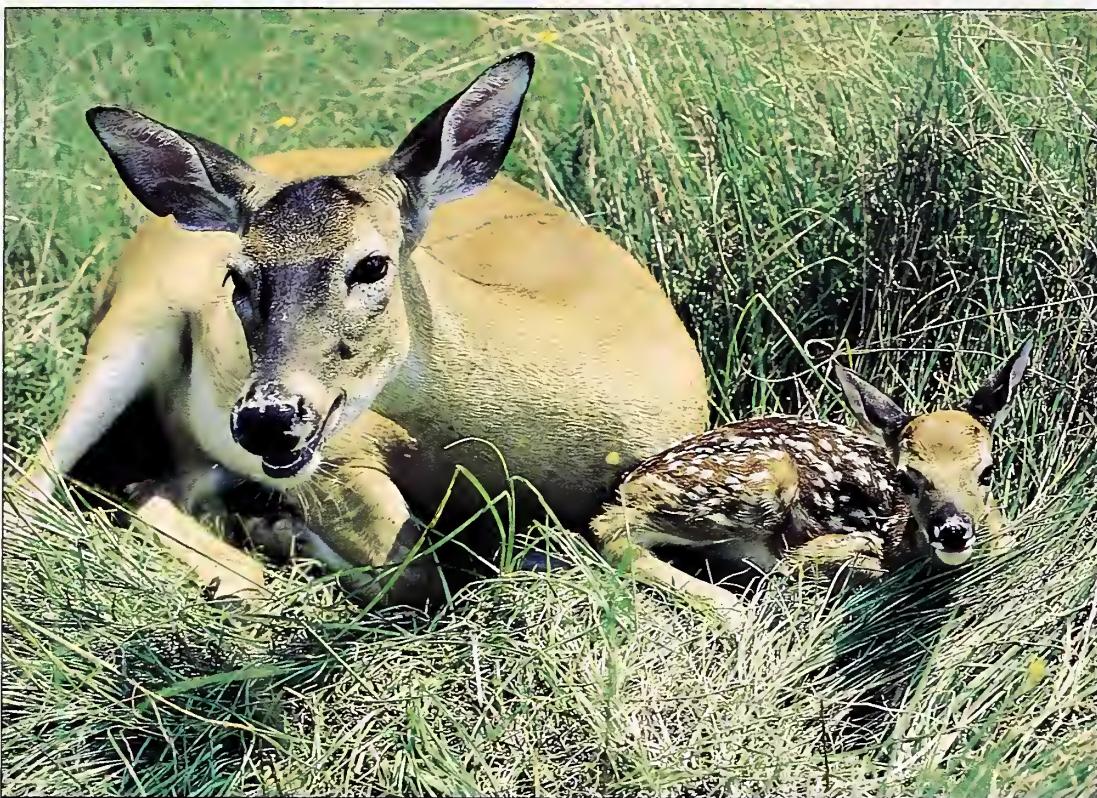
In areas where large amounts of farmland have been planted in trees, "water bodies and wetlands that are impaired by pollutants from highly erodible cropland are expected to show a significant improvement," according to the CRP evaluation.

These water quality improvements will pay off in healthier fish and wildlife and in improved swimming, fishing, boating, and waterfowl hunting.

At the same time, taxpayers will benefit from reductions in the hefty costs associated with cleaning up fouled streams. According to a 1985 study by the Conservation Foundation, the "off farm" costs of cropland erosion — the costs of cleaning up waterways for recreation, of treating water for drinking, and of dredging channels for navigation — amount to more than \$2 billion a year.

Trees Can Help Counteract the Greenhouse Effect

Global climate changes are caused, in part, by a buildup in the atmosphere of carbon dioxide (CO₂), generated when



fossil fuels are burned. The CO₂ gas acts something like the glass of a greenhouse: It allows the sun's rays to penetrate and warm the earth, but then traps the longer wave heat rays that would otherwise radiate back into space. This causes the earth's temperature to gradually rise and leads to climate changes.

However, because trees use CO₂ in the photosynthetic process, they can help reduce amounts of this gas in the atmosphere. According to the American Forestry Association, an acre of trees uses about 2.6 tons of CO₂ per year. The Environmental Defense Fund, meanwhile, estimates that 10 million acres of new forest could absorb virtually all the CO₂ emitted by the power plants to be built in the U.S. over the next decade.

Admittedly, tree planting represents only one step of many needed to address the climate change problem. Yet, considering the severity of the threat and the fact that vast tropical forests continue to be destroyed around the world, scientists and environmentalists

are paying increased attention to the role that a domestic reforestation effort could play in countering the greenhouse effect.

Moreover, forest replanting is one of the most cost-effective ways of reducing the

CO₂ buildup. A University of California study found, for example, that reducing CO₂ by one pound through tree planting costs 0.3 to 1.3 cents. It would cost 2.5 cents to accomplish the same thing by increasing the energy efficiency of appliances, and 10 cents to achieve the same CO₂ reduction by building more fuel-efficient cars.

Trees Help Wildlife

Once trees have had a chance to get established, they could mean a boom in such farm or forest wildlife species as deer, turkey, fox, raccoons, squirrels, quail, owls, and songbirds, to name only a few.

For a number of reasons, wildlife do well on forested land. First, trees and other permanent vegetation provide them with den and nesting sites that remain undisturbed as the wildlife raise their young. At the same time, trees and special wildlife plantings provide pine cones, nuts, fruits, and berries for food. Tree stands also offer shelter from severe weather and places where wildlife and birds can escape predators.





Trees Pay Off for Landowners

"Trees put money into people's pockets, while helping them to preserve the land."

The way that C.M. Stripling sees it, putting cropland into a tree planting program "isn't idling land, it's finding a viable new use."

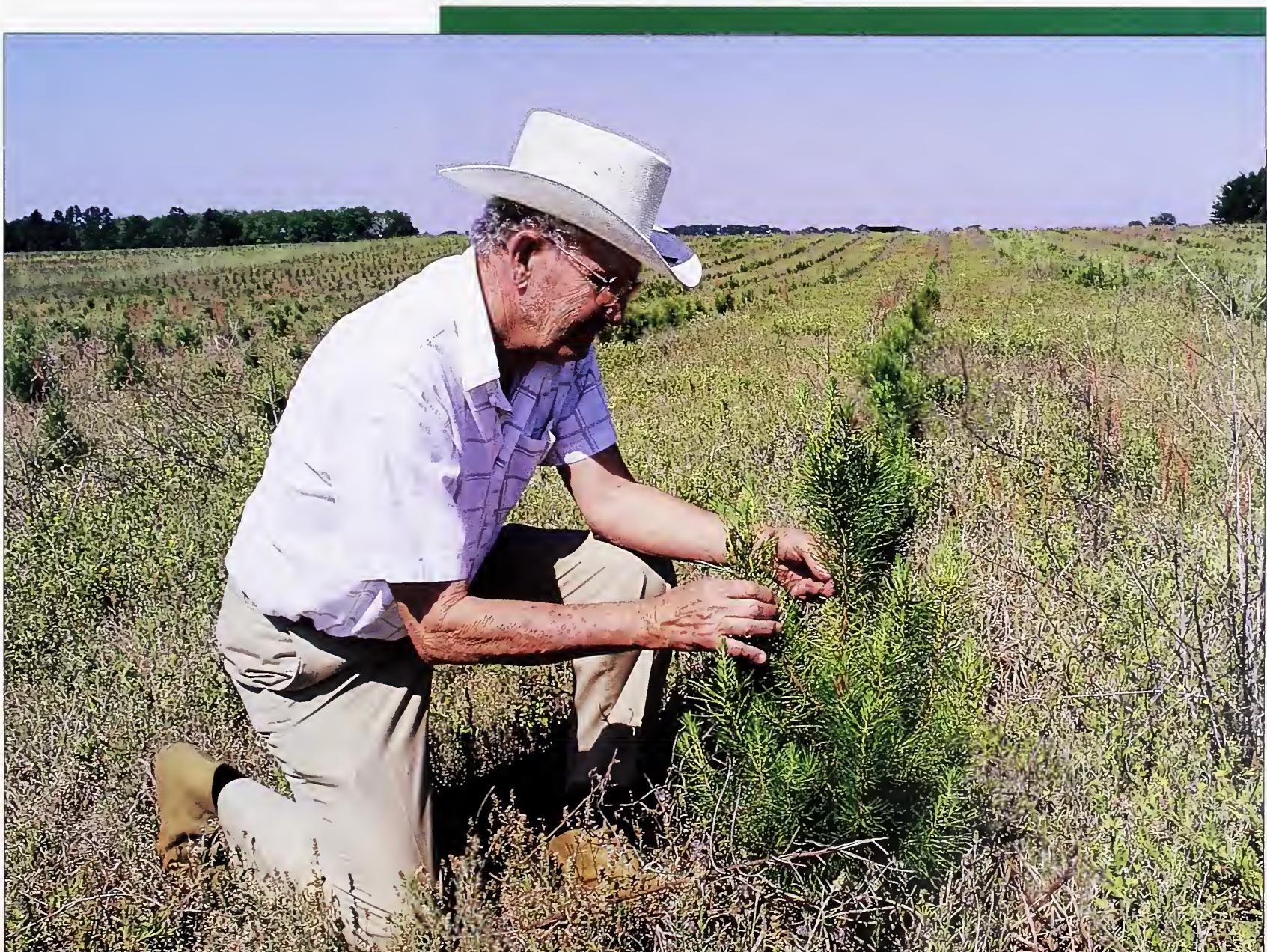
Stripling says it has often been a struggle for Georgia farmers like himself to make much of a profit from the soybeans, corn, peanuts, and other row crops they tried to grow on the State's sandy soils. But, he says, "with pine trees you can do it."

Taking advantage of financial incentives provided by a Government tree planting program, Stripling has replanted 177 of

those marginal acres to pines. He chose a mix of slash and loblolly pine for the better sites and sand pine and longleaf pine for sandier areas.

In Argenta, IL, meanwhile, Alvin and Connie Boyd have found a new use for an eroding 24-acre soybean field. In 1988, the couple enrolled the rolling acreage into a Federal program and planted 10,500 black walnut seedlings.

One of the advantages of trees to people like the Striplings and Boyds, is that trees can be harvested. Quick-growing





softwoods can begin to show returns in about 15 or 20 years; hardwoods like walnut trees take 30 to 40 years or more to grow to marketable size.

Trees are usually relatively inexpensive to plant (under some programs, the Government helps share the cost of buying and planting the seedlings), and they're easy to maintain. Some land-owners hire commercial tree planting contractors to do the work or obtain a tree planting machine from county conservation offices and do the work themselves. The Boyds installed their trees with a planter Alvin built himself from scrap iron.

Timber Profit Outlook

Just how much of a profit can trees yield? That depends on the species chosen, establishment costs, growing conditions, and future market conditions. At this point, the future looks bright for trees planted on private land, according to Forest Service projections. Trees established today, will go to market over the next 20 to 40 years. Because demand is expected to exceed supply, these trees should find a ready market.

To give an indication of the ways trees can pay off, Mr. Stripling, the Georgia farmer, points to the income he has received over the years from 450 acres of

pines that he planted in the 1950's and 60's under the Soil Bank, an earlier Federal cropland retirement program. So far, he has sold 14,000 cords of pulpwood and other products for \$288,000; the 300 acres of timber that are still standing are worth an additional \$375,000, excluding the value of the land. In addition, he was paid \$54,000 by the Government to enroll the land in the program.

Conditions for tree planting are especially favorable in the South, where soils are suited to fast growing conifers, growing seasons are long, and lumber mills plentiful. But forestry experts say there is a large untapped potential for commercial forest plantings in other regions of the country, as well.

Conservation Benefits

Of course, the benefits from trees don't lie only in their potential to generate cash. There are a variety of other tree planting options whose main advantages are conservation-related. Rural land-owners might choose to install wind-breaks, plantings for wildlife, or filter strips along streams or lakes, or to return a cropped wetland to native hardwood trees. Urban dwellers might plant shade trees around their homes, reducing utility costs.

Eventually, those farmers who are tilling erodible land may need to adopt these or similar soil saving practices anyway, in order to meet Federal conservation





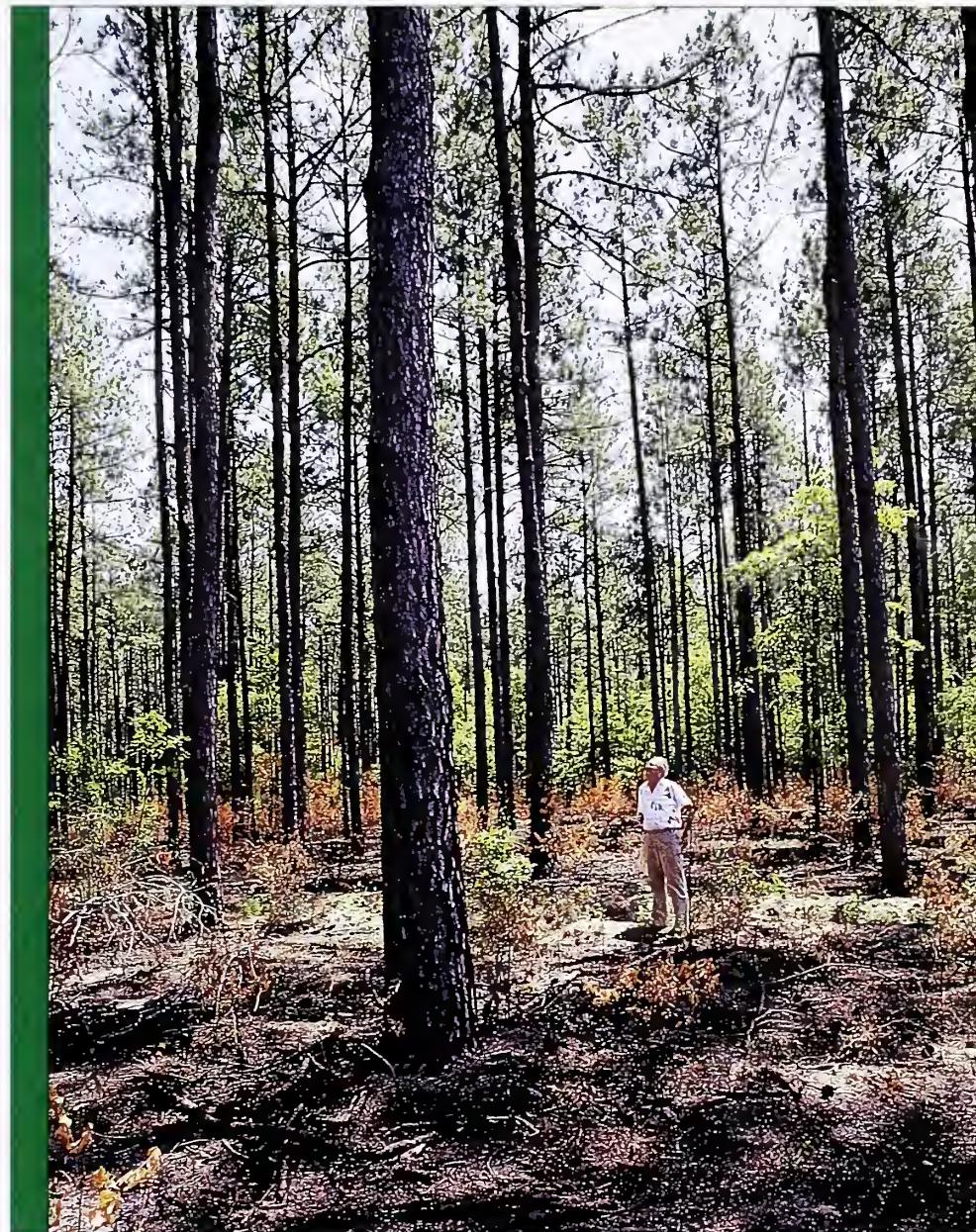
regulations. Under the conservation compliance provisions of the 1985 farm bill, farmers must develop and be actively applying an approved soil conservation plan for all highly erodible fields by 1990, and have that plan fully in effect by 1995, or they will lose their eligibility for certain U.S. Department of Agriculture farm program benefits. As a result, many producers could take advantage of financial incentives available under Federal tree planting programs "to do what they ultimately may be required to do to be in compliance," points out an official with the USDA's Agricultural Stabilization and Conservation Service.

Other Farm Impacts

Tree planting on former cropland may also help drive up crop prices, which will work to the farmer's advantage, C.M. Stripling points out. By taking millions of acres out of current crop production, surpluses will be reduced. "Those who want to continue to farm will have a better chance of success because there will be less competition at the marketplace," he says.

But C.M. Stripling says that for himself, the greatest motivation to put land into trees comes from neither the dictates of the Government nor the incentives of the marketplace, but rather from the value that he places on his land — for himself and for those who come after him.

Stripling, who is in his late 60s, admits that he doesn't expect to live to see the returns from his latest stands of pines. "But when I plant trees, I know I'm practicing good soil stewardship," he says. "And I know that I'll be leaving the land that we own in better shape than we found it."





Branching out: Improving on Success

"There is more that can be done to help reforest America."

The CRP tree planting effort is on the verge of becoming the largest publicly sponsored tree planting program in the Nation's history, topping the tree planting figures tallied up by the Civilian Conservation Corps in the 1930's and the Soil Bank Program two decades later.

Close to 30 million acres of land were set aside in the CRP during the program's first 3 years, with tree planting occurring on some 2 million of those acres. Changes made in the program in 1988 to spur more tree planting produced a significant increase in the percentage of CRP land devoted to trees.

The Forestry Incentives Program, the Agricultural Conservation Program and State incentive programs have put billions of additional trees into the ground across America.

While tree planting programs have made a good start in encouraging reforestation across the country, there is still room to grow. Forestry experts are looking at some additional steps that could be taken to help increase tree planting.

While growing conditions and markets for trees may be most favorable in Southern wood producing regions, timber producing stands can yield profits in other regions. Stepped-up landowner education efforts and additional financial incentives have been suggested to encourage more tree plantings in other regions.

In those locations where commercial stands may not be viable, there are other tree planting options that do make sense. Windbreaks, filter strips, and woody plantings for wildlife are

well suited to fields and pastures in many parts of the country. Agriculture and forestry officials are especially interested in encouraging more windbreak plantings in the Corn Belt and Great Plains areas where the trees can significantly reduce wind erosion.

Officials are also working to involve more urban dwellers, businesses and corporations, and local governments in tree planting efforts. As one Forest Service official said: "In this age of the greenhouse effect, trees offer our communities the double benefit of reducing CO₂ buildup and encouraging energy conservation by reducing the cooling needs of our homes and offices."





Getting Involved

"Tree planting is a positive, people-sized step that any person can take to help address the global climate change problem."

Tree planting is important not only to rural and urban landowners, agriculturalists, and environmentalists — but to us all. As Nebraska landowner and tree advocate J. Morton Porter says, "Just think how we could transform our country if we'd really get serious about planting trees. Every tree we plant brings us a little closer to a land of clear streams, deep topsoil, lush woodlands, and abundant wildlife."

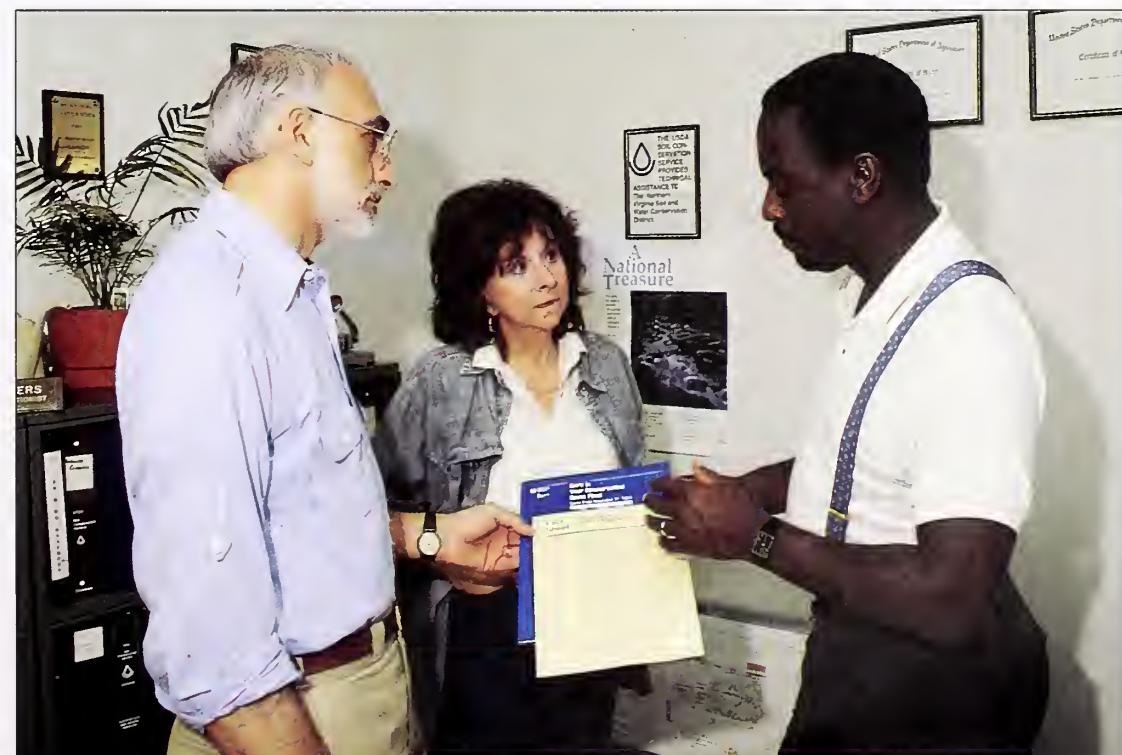
There are a number of things people can do to help the tree planting effort branch out further:

- **If you're a landowner**, contact your local ASCS office or State forestry office to talk about the tree planting options. In addition to timber-producing stands, you might investigate wildlife plantings, windbreaks, filter strips, and wetland reforestation.
- **If you're a forester or conservation agent**, meet with as many landowners as possible to explain the benefits of tree planting. "Many landowners think it's going to cost an arm and a leg and mean a lot of work," explains one local forester. "It takes personal contact to convince them otherwise," he says, "but when you're done, you often find that the person who wasn't going to plant any trees at all may end up planting 20 or 30 acres."

Another way to promote tree planting is through local reforestation committees. Georgia attributes its tree planting successes, in part, to using this approach. Consisting of State forestry agency and forest industry representatives, landowners, and community leaders, these committees identify reforestation goals, publicize tree planting, and make contact with landowners. Similar committees are at work in Alabama, South Carolina, and Mississippi.

Conservation districts in some States have also purchased tree planting equipment, which they lend to landowners. Mississippi has a goal of making a tree planting machine available in every county.

- **If you're a conservationist**, offer to help landowners obtain seedlings and plant them or to lend a hand with maintenance. Time is important to farmers, and your help could make the difference.





Conservation groups might also approach State officials or State lawmakers to discuss additional incentives that could be adopted to promote tree planting in their State.

- **If you're an outdoor enthusiast** who hunts, fishes, or camps on a farmer's land, this might be a good chance to have a friendly chat with that farmer about the benefits of trees for wildlife, says Arkansas outdoor writer Joe Mosby. "He doesn't need some city slicker trying to fast-talk him into signing up for another Government program," he points out. "But he might use a bit of friendly conversation, a sounding board about some of the advantages and disadvantages of tree planting."

Sportsmen's groups might offer to help buy seed for wildlife habitat plantings, assist with the plantings or provide information on recreational leasing agreements and landowner liability issues.

- **If you live in a city or town**, begin by planting trees around your own home. A few well-placed trees around a house can cut home air conditioning bills between 10 and 50 percent. And, as an American Forestry Association official says, "Tree planting is a positive, people-sized step that any person can take to help address global climate change."

Kiwanis, Rotary and other business clubs can adopt tree planting as a community service project—distributing trees and using contests and other methods to promote local tree planting. At the same time, individual businesses can help by installing trees around their own buildings and by contributing time and money to a larger local tree planting effort. Their participation helps boost community morale and the company's corporate image.

Local officials can promote tree planting in public places—along streets and highways and in city parks. They can also encourage public utilities to begin tree planting programs.

Finally, school children, youth groups, garden clubs, and senior citizen groups can be tapped to provide volunteer labor to plant city trees.

- **If you're an educator** you might adopt some local acreage as an "outdoor classroom." Have your class help the landowner establish the trees; then as they take root, use the area as a laboratory to study forest growth and ecosystems.



Trees Are the Answer

For the environment, tree planting:

- Protects soil productivity.
- Keeps streams clean.
- Helps counter the greenhouse effect and global climate change.
- Enhances rural landscapes.
- Improves wildlife habitat.

For landowners, tree planting:

- Provides future income from tree stands and the opportunity to diversify farm operations by combining cropping with tree cultivation.
- Provides financial incentives and technical assistance for converting some types of land, such as erodible cropland, to a use that is better suited to the land.

For the economy, tree planting:

- Adds to the future wood supply.
- Adds to the stability of rural economies by providing long-term income to farmers and jobs in the forest products industry.
- Reduces base acreage, when trees are planted on retired cropland. In those cases, trees reduce crop surpluses and Federal commodity program costs.

For More Information

For more information on tree planting programs, contact your State or county forestry offices, the USDA Forest Service, the Agricultural Stabilization and Conservation Service, the Cooperative Extension Service or the Soil Conservation Service.



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